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FOLEY & LARDNER LLP
150 EAST GILMAN STREET
P.O. BOX 1497
MADISON, WI 53701-1497

EXAMINER	
HUANG, WEN WU	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ARTO PALIN and JUKKA REUNAMAKI

Appeal 2010-004613
Application 10/773,287[1]
Technology Center 2600

Before ALLEN R. MACDONALD, ROBERT E. NAPPI, and MICHAEL R. ZECHER, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] Filed on February 9, 2004. The real party in interest is Spyder Navigations L.L.C. (App. Br. 3.)

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) (2002) from the Examiner's Final Rejection of claims 26-28, 30-36, and 38-55. (App. Br. 3; Reply Br. 3.) Claims 1-25, 29, and 37 have been cancelled. (*Id.*) We have jurisdiction under 35 U.S.C. § 6(b) (2008).[2]

We affirm.

Appellants' Invention

Appellants invented a method and apparatus directed to techniques for controlling the frequency hopping and timing of wireless transmissions. (Spec. ¶ [0001].)

Illustrative Claim

> 26. A method of transmitting information by a wireless communication device, the method comprising:
>
> monitoring an energy level of a monitored frequency band of a selected frequency hopping pattern; and
>
> transmitting data on a transmit frequency band of said selected frequency hopping pattern if said energy level indicates a particular condition of said monitored frequency band, wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.

Prior Art Relied Upon

Adachi	US 6,256,334 B1	July 3, 2001
Ryan	US 6,333,937 B1	Dec. 25, 2001
Jang	US 2002/0167931 A1	Nov. 14, 2002
Mahany	US 2003/0078006 A1	Apr. 24, 2003
Schmidl	US 2003/0206561 A1	Nov. 6, 2003

[2] Appellants waived attendance at an oral hearing scheduled for October 25, 2011. (*See* Hearing Waiver Confirmation filed October 3, 2011.)

Sakoda	US 7,110, 472 B2	Sept. 19, 2006 (filed on Apr. 1, 2002)

Rejections on Appeal

Claims 26, 27, 31-35, 39-43, 45, and 50-55 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Jang and Adachi.

Claims 28, 36, and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Jang, Adachi, and Schmidl.

Claims 30, 38, and 46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Jang, Adachi, and Ryan.

Claims 47 and 48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Jang, Adachi, and Sakoda.

Claim 49 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Jang, Adachi, and Mahany.

Appellants' Contentions

Appellants contend that Adachi discloses receiving a probe response signal that contains timing information from a neighboring Local Area Network (hereinafter "LAN"), and basing the timing of frequency hopping on the time value in the received signal. (App. Br. 8-9.) Appellants argue that this is completely different from the claimed elements, in which "a timing of further data transmission according to the selected frequency hopping pattern is determined *based on a time at which the particular condition is met*," as recited in independent claim 26. (*Id.* at 9.) (Emphasis in original.) In particular, Appellants allege that the claimed "particular condition" refers to a condition that is based on detection of an energy level of the monitored frequency band. (*Id.*) Therefore, Appellants contend that

since Adachi discloses determining timing based on the timing information received in the probe response signal, Adachi does not teach or suggest the claimed "particular condition." (App. Br. 9.)

Moreover, Appellants argue that Jang's disclosure of providing some standby time for switching between reception and transmission mode prior to data transmission does not teach or suggest monitoring an energy level, let alone any condition relating to an energy level. (*Id.* at 11-12.) Appellants also allege that Jang's disclosure of setting a transmission time and using a measurement to indicate whether or not to proceed with transmission does not teach or suggest that measuring an energy level determines transmission timing. (App. Br. 12.) In response to the Examiner's Answer, Appellants contend that Jang's disclosure of slot-by-slot monitoring (i.e., determining a good channel state in one slot) teaches away from establishing timing for transmission in further slots. (Reply Br. 5-6.)

Examiner's Findings and Conclusions

The Examiner finds that Jang teaches or suggests "wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition (as indicated by the monitored energy level) is met," as recited in independent claim 26. (Ans. 15.) The Examiner finds that Jang is silent with regards to the claimed "further data transmission according to the selected frequency hopping pattern," but the Adachi remedies such deficiency. (*Id.*) In particular, the Examiner finds that Jang discloses that a measurement unit monitors the energy level of a received signal, and based on such monitoring, works in conjunction with a judgment unit to determine when a "particular condition is met," as claimed. (*Id.* at 17.) The Examiner finds

that Jang's disclosure of the judgment unit determining whether the strength of the received signal is smaller than that of a reference signal teaches or suggests "a time at which the particular condition is met," as claimed. (*Id.* at 17-18.) Further, the Examiner finds that Jang's disclosure of switching from a reception to a transmission mode is based on a time at which the judgment unit determines that the claimed "particular condition is met" (i.e., the judgment unit determines that the transmission slot has a good channel state). (*Id.* at 18.)

Moreover, the Examiner finds that Adachi's disclosure of receiving a response signal teaches or suggests determining "further data transmission according to the selected frequency hopping pattern," as claimed. (*Id.*) In particular, the Examiner finds that the timing of the frequency hopping pattern is based on Adachi's disclosure of receiving a probe response signal that contains timing information from a neighboring LAN. (*Id.* at 19.)

II. ISSUE

Has the Examiner erred in concluding that the combination of Jang and Adachi renders independent claim 26 unpatentable? In particular, the issue turns on whether the proffered combination teaches or suggests the following claim limitations:

(a) "transmitting data on a transmit frequency band of said selected frequency hopping pattern if said energy level indicates a particular condition of said monitored frequency band;" and

(b) "wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met."

III. FINDINGS OF FACT

The following Findings of Fact (hereinafter "FF") are shown by a preponderance of the evidence.

Jang

FF 1. Jang's figure 6 depicts an apparatus (60) for avoiding mutual interference between wireless communication systems. (¶ [0031].) Jang discloses that the apparatus (60) includes a measurement unit (61) for measuring a channel state of a transmission slot to be allocated, a judgment unit (62) for judging data transmission on the basis of the channel state of the transmission slot measured, and a control unit (63) that outputs a signal for performing a transmission operation of the data according to the judgment of the judgment unit (61). (*Id.*)

FF 2. Upon receiving a signal via a predetermined transmission slot, Jang discloses that the measurement unit (61) measures the strength of such signal, thereby measuring the channel state of the transmission slot to be allocated. (¶ [0034].) After the strength of the received signal measured in the measurement unit (61) is inputted into the judgment unit (62), Jang discloses that the judgment unit (62) judges data transmission by comparing the strength of the received signal with the strength of a reference signal. (¶ [0035].) When the strength of the received signal is smaller than that of the reference signal, Jang discloses that the judgment unit (62) determines that the transmission slot has a good channel state. (*Id.*) After the judgment unit (62) determines that the transmission slot has a good channel state, Jang discloses that the control unit (63) transmits the signal for performing the transmission operation of the data to the wireless communication system

(65). (¶ [0036.) Further, Jang discloses that the wireless communication system (65) converts from reception mode to transmission mode, and transmits the data through the allocated transmission slot. (*Id.*)

Adachi

FF 3. Adachi's figure 6 depicts a flowchart that determines the pattern and timing of frequency hopping performed by a radio base station. (Col. 17, ll. 21-24.) By setting the value of a timer (50c), Adachi discloses selecting a time at which no frequency interference occurs between the frequency hopping according to a previously-described pattern and frequency hopping performed in another radio LAN (10). (*Id.* at ll. 61-65.)

IV. ANALYSIS

Claim 26

Independent claim 26 recites, *inter alia*:

> [1)] transmitting data on a transmit frequency band of said selected frequency hopping pattern if said energy level indicates a particular condition of said monitored frequency band [;] [and] [2)] wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.

As detailed in the Findings of Fact section *supra*, Jang discloses an apparatus for avoiding interference between wireless communication systems that includes a measurement unit, a judgment unit, and a control unit. (FF 1.) In particular, Jang discloses that a wireless communication system receives a signal from a selected data transmission channel, and inputs such signal into the measurement unit. (FF 2.) After the measurement unit measures the strength of the received signal, Jang

discloses that the measurement unit inputs the strength of the received signal into the judgment unit. (*Id.*) Jang discloses that the judgment unit compares the strength of the received signal with the strength of a reference signal. (*Id.*) If the strength of the received signal is less than that of the reference signal, Jang discloses that the judgment unit determines that the selected data transmission channel has a good channel state. (*Id.*) Upon determining that the selected data transmission channel has a good channel state, Jang discloses that the control unit relays to the wireless communication system that it can transmit data via the selected data transmission channel. (*Id.*)

We find that Jang's disclosure of measuring the strength of a signal received from a selected data transmission channel amounts to monitoring the energy level of a frequency band. Moreover, we find that an ordinarily skilled artisan would have understood that Jang's disclosure of the wireless communication system transmitting data via the selected data transmission channel, only if the judgment unit determines that the measured strength of a received signal is less than that of a reference signal, teaches or suggests transmitting data on a frequency band if monitoring the energy level of a data transmission in the frequency band identifies a low energy condition. Thus, we find that Jang teaches or suggests "transmitting data on a transmit frequency band of said selected frequency hopping pattern if said energy level indicates a particular condition of said monitored frequency band," as recited in independent claim 26.

Next, Adachi discloses determining the pattern and timing of frequency hopping performed by a radio base station located in a radio LAN. (FF 3.) In particular, by setting the value of a timer, Adachi discloses selecting a time for data transmission that avoids interfering with the

frequency hopping that occurs in another radio LAN. (*Id.*) We find that Adachi's disclosure of selecting a time for data transmission that avoids interfering with the frequency hopping that occurs in another radio LAN teaches or suggests designating the timing of further data transmissions according to a frequency hopping pattern.

In summary, we find that an ordinarily skilled artisan would have readily appreciated incorporating Adachi's method of designating the timing of further data transmissions according to a frequency hopping pattern, with Jang's disclosure of monitoring the energy level of a frequency band, such that timing for further data transmissions according to the frequency hopping pattern may be designated at a time when Jang's monitored frequency band is experiencing a low energy condition. Thus, we find that the combination of Jang and Adachi teaches or suggests "wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met," as recited in independent claim 26.

We find untimely Appellants' argument that Jang's disclosure of slot-by-slot monitoring (i.e., determining a good channel state in one slot) teaches away from establishing timing for transmission in further slots. (Reply Br. 5-6.)[3] We note that Appellants raised this argument for the first time in the Reply Brief. We further note that this argument is not raised in response to any new issues the Examiner may have raised in the Answer, or

[3] "[T]he reply brief [is not] an opportunity to make arguments that could have been made in the principal brief on appeal to rebut the Examiner's rejections, but were not." *See Ex parte Borden*, 93 USPQ2d 1473, 1474 (BPAI 2010) (Informative).

to address changes or developments in the law that may have occurred after the Appeal brief was filed. Appellants' attempt to introduce such a belated argument in the Reply Brief is improper.

Nonetheless, to the extent that Appellants' argument is premised on the notion that Jang does not teach or suggest monitoring the channel state of more than one slot, we are not persuaded. First, independent claim 26 does not recite monitoring the energy level of multiple frequency bands or slots, but rather explicitly recites "monitoring an energy level of *a monitored frequency band*." (Emphasis added.) Second, as discussed *supra*, the combination of Jang and Adachi teaches or suggests that "[the] timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met," as claimed. It follows that the Examiner has not erred in concluding that the combination of Jang and Adachi renders independent claim 26 unpatentable.

Claims 34 and 42

Independent claims 34 and 42 recite similar claim limitations as independent claim 26. (*See* App. Br. 7-8 and 10.) Therefore, for the same reasons discussed *supra*, the Examiner has not erred in concluding that the combination of Jang and Adachi renders independent claims 34 and 42 unpatentable.

Claims 27, 31-33, 35, 39-41, 43, 45, and 50-55

Appellants do not provide separate and distinct arguments for patentability with respect to dependent claims 27, 31-33, 35, 39-41, 43, 45, and 50-55. Therefore, we select independent claim 26 as representative of these cited claims. Consequently, the Examiner has not erred in rejecting

dependent claims 27, 31-33, 35, 39-41, 43, 45, and 50-55 for the same reasons set forth in our discussion of independent claim 26. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Claims 28, 30, 36, 38, 44, and 46-49

Appellants contend that neither Schmidl, Ryan, Sakoda, nor Mahany remedy the alleged deficiencies of Jang and Adachi and, therefore, the cited combinations do not render dependent claims 28, 30, 36, 38, 44, and 46-49 unpatentable. (*See* App. Br. 9 and 12.) We do not agree. As discussed *supra*, we find no such deficiencies in the combination of Jang and Adachi for Schmidl, Ryan, Sakoda, or Mahany to remedy. It follows that the Examiner has not erred in concluding that: 1) the combination of Jang, Adachi, and Schmidl renders dependent claims 28, 36, and 44 unpatentable; 2) the combination of Jang, Adachi, and Ryan renders dependent claims 30, 38, and 46 unpatentable; 3) the combination of Jang, Adachi, and Sakoda renders dependent claims 47 and 48 unpatentable; and 4) the combination of Jang, Adachi, and Mahany renders dependent claim 49 unpatentable.

V. CONCLUSION OF LAW

The Examiner has not erred in rejecting claims 26-28, 30-36, and 38-55 as being unpatentable under 35 U.S.C. § 103(a).

VI. DECISION

We affirm the Examiner's decision to reject claims 26-28, 30-36, and 38-55 as being unpatentable under 35 U.S.C. § 103(a) .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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